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U.S. Army Armor Human Research Unit
Fort Knox, Kentucky

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An Appraisal of Some Night Training Problems in
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Research Memo
May 1961

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"Human Factors in Armor Operations under Conditions of Limited Visibility"

Norman Willard, Jr.

NORMAN WILLARD, JR.
Director of Research

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An Appraisal of Some Night Training Problems in Armor Units
of Seventh United States Army

INTRODUCTION

In recent years the importance of combat readiness for night operations has been widely recognized by armor commanders--because of three factors. First, experiences in World War II and in the Korean War have shown that US troops were ill prepared for night combat. Second, the advent of tactical nuclear weapons has made it imperative that daytime exposure to enemy reconnaissance be reduced to a minimum. And finally, the emphasis given to night training by the forces of the Soviet Union has removed any doubt as to our potential enemy's view of the matter.

Recognition of the importance of readiness for night operations has led to demands for new night fighting devices, and to much discussion about the necessity of night training. Since the time allotted to individual training is barely sufficient to produce tank crewmen who have acceptable daytime proficiency, the primary responsibility for night training has naturally fallen on commanders who have the job of planning and executing training activities at the basic and advanced unit levels. In order to appraise the extent to which these activities were achieving the goal of night combat readiness, and to gain some insight into the problems related to the administration of armor night training, a survey of armor units was conducted in Seventh Army in the fall of 1958.¹

¹This survey was part of a larger survey on Armor training problems conducted at the same time. See R. A. Baker, A Survey of Current Problems in the Tactical Training of Armor Units (U), draft technical report (Fort Knox: US Army Armor HQU, April 1960) (CONFIDENTIAL). The data reported here were collected by Dr. Robert A. Baker, Lt. Col. John G. Cook, USA (Ret), Mr. Eugene Roach, and Mr. Shepard Schwartz, whose assistance is hereby gratefully acknowledged.

SOURCES OF INFORMATION

Information was obtained from three sources: 1) tape-recorded interviews with commanding officers in 18 armor units; 2) questionnaires given to 400 tank commanders in these 18 units and in four others; and 3) field observations and informal interviews conducted during the night phases of Army training tests or training exercises given to four of these 22 units.²

The 22 units visited are listed below.³ Of the 18 units in which commanding officers were interviewed, ten were armor battalions, and eight were

- 3d Armored Division
 - 1st Medium Tank Battalion, 32d Armor
 - 1st Medium Tank Battalion, 33d Armor
 - 2d Medium Tank Battalion, 1st Cavalry
 - 2d Medium Tank Battalion, 13th Cavalry
- 4th Armored Division
 - 1st Medium Tank Battalion, 35th Armor*
 - 1st Medium Tank Battalion, 37th Armor*
 - 2d Medium Tank Battalion, 66th Armor
 - 2d Medium Tank Battalion, 67th Armor*
- 2d Armored Cavalry Regiment
 - 1st Reconnaissance Squadron
 - 2d Reconnaissance Squadron
 - 3d Reconnaissance Squadron
- 11th Armored Cavalry Regiment
 - 1st Reconnaissance Squadron*
 - 2d Reconnaissance Squadron
 - 3d Reconnaissance Squadron
- 14th Armored Cavalry Regiment
 - 1st Reconnaissance Squadron
 - 2d Reconnaissance Squadron
 - 3d Reconnaissance Squadron
- 3d Infantry Division
 - 1st Medium Tank Battalion, 68th Armor
- 8th Infantry Division
 - 2d Medium Tank Battalion, 68th Armor
- 24th Infantry Division
 - 3d Medium Tank Battalion, 34th Armor
- 4th Armor Group
 - 3d Medium Tank Battalion, 37th Armor
 - 2d Heavy Tank Battalion, 33d Armor

²These observations and interviews were conducted by the author.

³Questionnaires were given to tank commanders from all 22 units. Interviews with officers were conducted in 18 units, all but the four the names of which are starred.

reconnaissance squadrons. In the armor battalions the officer interviewed was the battalion commander, and in the reconnaissance squadrons either the squadron commander or the commander of the tank company. Of the 18 officers interviewed, 11 were lieutenant colonels, two were majors (battalion executive officers acting as battalion commanders), four were captains, and one was a first lieutenant (acting as company commander). The anonymity of these officers was guaranteed before the interviews were held.

The 400 tank commanders to whom questionnaires were given were selected, on the basis of availability, from the line companies of the 22 units visited. Under normal conditions of personnel strength, the total number of tank commanders in the line companies of these units (13 armor battalions and nine reconnaissance squadrons) would have been 894. Assuming that a ten per cent personnel shortage existed at the time of the visits, the number of tank commanders questioned constituted about half the number of tank commanders who were assigned to these units.

The field observations and informal interviews were conducted during the night phases of the following: 1) the Army Training Test taken by a reconnaissance squadron; 2) a training exercise conducted by an armor battalion; 3) a platoon training exercise conducted by a tank platoon of a reconnaissance squadron; and 4) a training exercise conducted by the combat command of an armored division. The first three of these activities consisted of night road marches and night security problems; the last consisted of a night attack and a passage through friendly lines. Most of the observations were made from a line platoon tank.

RESULTS AND DISCUSSION

Table 1 shows the interview replies given by the 18 commanding officers. All the answers were categorized according to their essential meanings.

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(C) Table 1

Information Obtained by Interviewing Commanders of 18 Armor Units (7th Army)^a

1. Do you believe that your troops are adequately prepared for night warfare?	Yes	1
	No	17
2. Do you think that your troops are as well prepared as are Russian armored units?	Yes	0
	No	12
	Don't know	6
3. If war broke out now, approximately what percentage of armor engagements would be fought at night?	One-third or less	7
	About half	5
	Over half	2
	Don't know	4
4. Will night engagements be more frequent in a war a few years from now than they would be today?	Yes	14
	No	2
	Don't know	2
5. Have there been any fatal accidents in your unit during night activities?	Yes	2
	No	16
6. Is the safety problem unduly limiting the effectiveness of night training exercises?	Yes	5
	No	13
7. Would you be in favor of sacrificing some of the safety precautions in order to get better night training?	Yes	9
	No	9
8. On the average, how much night firing practice (main gun) did your tank crews get during the past 12 months?	None	17
	Some	1
9. Are you satisfied with the coverage given to night fighting in the armor training literature?	Yes	5
	No	13
10. If not, what are the most noteworthy deficiencies?	Too little and too general	13
	Other armies not covered	1
11. Does your unit have sufficient time and adequate facilities to engage in night training activities?	Yes	3
	No	15
12. If you had the necessary time and facilities and did not have to be unduly concerned with safety precautions, what sort of night training would you want your troops to have?	Everything	9
	Attack	5
	Movement and control	4
	Recon, security, and prep for attack	4
13. What night fighting equipment and materiel does your unit have?	Infrared driver's periscope	18
	Searchlights	1
	Sniperscope	1

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14. Do the Russians have:
 tank-mounted searchlights? infrared devices? other night fighting equipment?

Yes	5	11	0
No	0	0	0
Don't know	13	7	18

15. What is the biggest problem you face in getting your unit prepared for night fighting?

Lack of sufficient training areas	11
Lack of sufficient time	6
Safety restrictions	3
Low daytime proficiency	1
Control problems	1
Apathy	1
No problems	1

16. With what aspects of night operations would your unit have the most difficulties in combat?

Control and coordination	18
Preparation for attack, and attack	9
Firing	4
Maintaining direction	2
Fear	1

^aFor some items, the responses totaled more than 18 because one or more officers gave more than one response.

(C) Seldom was an answer as brief as "yes" or "no." Most of the results speak for themselves. It is evident that there was general dissatisfaction with the state of preparedness for night operations. About two-thirds of the officers said that the training literature was inadequate, and most of them found that too little time and insufficient facilities were available for night training. Only one of the 18 units represented had conducted a main gun firing practice at night during the preceding 12 months. Of some significance are the responses to the question about Russian night fighting equipment, which indicated that most of the officers were rather poorly informed about the night fighting equipment of the potential enemy. The cause may have been inadequacy of intelligence, or incompleteness of communication of intelligence information to field commanders.

The questionnaire replies of the 400 tank commanders are shown in Tables 2, 3, and 4. Table 2 is a general summary of the replies given to questions about the tank commanders' experience in firing the main gun at night—in combat and in various phases of training. A detailed summary for

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tank commanders who did have night firing experience is shown in Table 3.
The replies for the other questionnaire items are shown in Table 4.

(C) Table 2
Experience of Tank Commanders in Firing the Main Gun at Night (N = 400)^a

Time Period	Number	Per Cent
In Advanced Individual Training	75	19
In Basic Unit Training	87	22
In Advanced Unit Training	85	21
In Combat	75	19
Never	205	51

^aEntries total more than 400 or more than 100% because some tank commanders had fired the main gun at night during more than one time period.

(C) Table 3
Detailed Summary of Night Gunnery Information

	In Combat N = 75 Per Cent ^a	During AIT N = 75 Per Cent	During BUT N = 87 Per Cent	During AUT N = 85 Per Cent
Tank Fired				
M47 or M48		47	61	59
Other		69	53	41
When? 1957-58		29	36	33
1954-56		28	38	45
Prior to 1954		60	45	41
Where? Korea	87			
Europe	23			
Targets				
Panels		76	71	78
Tank hulls		13	15	15
Other noncombat		11	14	7
Tanks	25			
Infantry	59			
Bunkers	15			
MG positions	9			
Antitank weapons	7			
Other combat	13			
Illumination				
Searchlight	27	25		
Flares	32	23		
Moonlight	7			
Other	11	19		
None	17	17		
Don't recall	7	16		

^aSome groups of entries may total more than 100 per cent because some of the Tank Commanders' responses fell in several categories.

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(C) Table 4
Tabulations of Other Information Obtained Through Questionnaires Given to 400
Tank Commanders Representing 22 Armor Units in Seventh Army

Question	Type of Reply	Number ^a	Per Cent
1. How long have you been a tank commander?	0-6 months	75	19
	7-12 months	54	14
	13-24 months	77	19
	25-36 months	36	9
	Over 36 months	146	36
	Don't recall	12	3
2. Since you have been a tank commander, have you ever been on a night march?	Yes	350	88
	No	50	12
3. About how much of that night driving was with headlights? (N = 350)	0%	89	25
	25%	65	19
	50%	113	32
	75%	60	17
	100%	23	7
4. About how much of that driving was blackout driving? (N = 350)	0%	31	9
	25%	86	25
	50%	107	31
	75%	62	18
	100%	64	18
5. About how much of that driving was with the infrared periscope? (N = 350)	0%	314	90
	25%	27	8
	50%	7	2
	75%	1	0
	100%	1	0
6. Have you ever fired the main gun from the tank commander's position?	On the M48	240	60
	On the M48A2	29	7
	No	160	40
7. Have you ever seen a tank-mounted searchlight?	Yes	260	65
	No	140	35
8. Are there any tank-mounted searchlights in your company?	Yes	56	14
	No	333	83
	Don't know	11	3
9. Have you ever operated a tank-mounted searchlight?	Yes	60	15
	No	340	85
10. How far can you see an enemy tank with a tank-mounted searchlight?	Under 500 yards	6	2
	500-900 yards	13	3
	1000-1500 yards	30	8
	Over 1500 yards	17	4
	Don't know	334	84
11. Have you ever had any practice in the use of the rangefinder at night, against illuminated targets?	Yes	59	15
	No	341	85
12. Do Russian armor units have tank-mounted searchlights?	Yes	46	12
	No	14	4
	Don't know	340	85

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13. If war would break out tomorrow, do you think Russian armor would fight at night?	Often	196	49
	Very little	140	35
	No	28	7
	Don't know	36	9
14. Do you think US armor is as well prepared to fight at night as Russian armor is?	Yes	270	68
	No	39	10
	Don't know	91	23
15. Do you think that you have had enough night training?	Yes	142	36
	No	246	62
	Don't know	12	3

^aSome groups of entries may total more than 400 (or more than 100%) for some of the tank commanders questioned made more than one response.

(C) Most of the answers require little or no comment. Since a majority of tank commanders are usually selected from the ranks of tank gunners (53 per cent in this sample), their replies are informative also about tank gunners. The information summarized in Table 2 indicates the extent to which the tank commanders had been trained in night gunnery, and that in Table 3 indicates the conditions under which this training was conducted. It is evident that most of these tank commanders were relatively untrained in night gunnery. The tank commanders' replies, like those of the unit commanders, showed that knowledge about the night combat capabilities of the potential enemy was inadequate (Table 4, Item 12). However, they were considerably more optimistic than the unit commanders about the comparative degree of preparedness of the US and Russia for armor night combat. Sixty-eight per cent said that US armor was as well prepared to fight at night as Russian armor (Item 14); whereas all the unit commanders interviewed said it was not (Table 1, Item 2).

(C) The field observations and informal interviews conducted during the night phases of training and testing indicate that armor units seem to spend a considerable amount of time in the field at night. But this amount is a poor criterion by which to judge the amount or type of individual and crew training given at night. Much of the time spent at night involves movement

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preparation for attack, and security; therefore individuals and crews receive little or no training in engaging an enemy. Important armor skills in gunnery, tactical driving, and maintenance cannot be performed effectively under conditions of low visibility unless training is conducted under these conditions. Yet little or no such training seems to be given. Thus, the most important problem in night training is the requirement for increased individual and crew training, especially in gunnery, tactical driving, and maintenance. This requirement must be met by increased emphasis on night skills during the individual, basic unit, and advanced unit training cycles. It is this problem which armor commanders must solve if night combat readiness is to become a reality.

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